CPC COOPERATIVE PATENT CLASSIFICATION

F16N LUBRICATING

NOTE

Attention is drawn to the following places:

A01D 69/12	Lubrication of harvesters;
B21J 3/00	Lubricating during forging or pressing;
B25D 17/26	Lubricating of portable power-driven percussive tools;
B60R 17/00	Arrangements or adaptations of lubricating; systems or devices in vehicles;
B61C 17/08	Lubrication systems for railway locomotives;
B62D 55/092	Vehicle endless-track units with lubrication means;
D04B 35/28	Devices for lubricating knitting machine parts;
E05B 17/08	Lubricating devices for locks;
E05D 11/02	Lubricating arrangements for hinges;
E21B 10/22	Lubricating details of roller drill bits for earth; drilling.

Lubrication devices or arrangements for oil or grease

1/00 **Constructional modifications of parts of machines or apparatus for the purpose of lubrication**

3/00 **Devices for supplying lubricant by manual action** (draining equipment for liquid containers B65D)

3/02 . delivering oil
3/04 . . Oil cans; Oil syringes
3/06 . . . delivering on squeezing
3/08 . . . incorporating a piston-pump
3/10 . delivering grease
3/12 . . Grease guns

5/00 **Apparatus with hand-positioned nozzle supplied with lubricant under pressure** (F16N 3/00 takes precedence)

5/02 . Nozzles or nozzle-valve arrangements therefor, e.g. high-pressure grease guns

7/00 **Arrangements for supplying oil or unspecified lubricant from a stationary reservoir or the equivalent in or on the machine or member to be lubricated** (axle-box lubrication for railway rolling-stock B61F 17/00)

7/02 . with gravity feed or drip lubrication
7/04 . . with oil flow promoted by vibration
7/06 . . Arrangements in which the droplets are visible
7/08 . . controlled by means of the temperature of the member to be lubricated (thermostats G05D)
7/10 . . incorporating manually-operated control means, e.g. spindles
7/12 . with feed by capillary action, e.g. by wicks
7/14 . the lubricant being conveyed from the reservoir by mechanical means (by pumping devices F16N 7/36, F16N 7/38; adaptations for lubrication of machines or engines in general, of internal-combustion engines F01M)
7/16 . . the oil being carried up by a lifting device (scoop devices in general F04D)
7/18 . . . with one or more feed members fixed on a shaft
7/20 . . . with one or more members moving around the shaft to be lubricated
7/22 . . . . shaped as rings
7/24 . . . with discs, rollers, belts or the like contacting the shaft to be lubricated
7/26 . . Splash lubrication (mist lubrication F16N 7/32)
7/28 . . Dip lubrication
7/30 . the oil being fed or carried along by another fluid (in internal- combustion engines F02F)
7/32 . . Mist lubrication (splash lubrication F16N 7/26)
7/34 . . . Atomising devices for oil (atomising devices in general B05B)
7/36 . with feed by pumping action of the member to be lubricated or of a shaft of the machine; Centrifugal lubrication
7/363 . . {Centrifugal lubrication}
7/366 . . {with feed by pumping action of a vertical shaft of the machine}
7/38 . with a separate pump; Central lubrication systems
7/385 . . {Central lubrication systems}
7/40 . . in a closed circulation system

9/00 **Arrangements for supplying oil or unspecified lubricant from a moving reservoir or the equivalent** (also usable with a stationary reservoir F16N 7/00)

9/02 . with reservoir on or in a rotary member
9/04 . with reservoir on or in a reciprocating, rocking, or swinging member

11/00 **Arrangements for supplying grease from a stationary reservoir or the equivalent in or on the machine or member to be lubricated; Grease cups**

11/02 . Hand-actuated grease cups, e.g. Stauffer cups
11/04 . Spring-loaded devices
11/06 . Weight-loaded devices
11/08 . with mechanical drive, other than directly by springs or weights (lubricating-pumps F16N 13/00)
11/10 . by pressure of another fluid
11/12 . by centrifugal action

13/00 **Lubricating-pumps** (oil cans with pump F16N 3/08; pumps for liquids in general F04)

2013/003 . {Flexible-wall pumps}
2013/006 . {Jet pumps}
13/02 . with reciprocating piston (pumps with distributing equipment F16N 13/22)
13/04 . . Adjustable reciprocating pumps
13/06 . . Actuation of lubricating-pumps
2013/063 . . . {with electrical drive}
2013/066 . . . {with electromagnetical drive}
13/08 . . . by hand {or foot}

13/10 . . . with mechanical drive (F16N 13/18 takes precedence)
13/12 . . . . with ratchet
13/14 . . . . with cam or wobble-plate on shaft parallel to the pump cylinder or cylinders
13/16 . . . with fluid drive
13/18 . . . relative movement of pump parts being produced by inertia of one of the parts or of a driving member
13/20 . Rotary pumps (with distributing equipment F16N 13/22)
2013/205 . . {Screw pumps}
13/22 . with distributing equipment (separate distributing equipment F16N 25/00)

15/00 Lubrication with substances other than oil or grease; Lubrication characterised by the use of particular lubricants in particular apparatus or conditions (F16N 17/00 takes precedence; lubricating compositions, selection of particular substances as lubricants in general C10M; bearings with surfaces incorporating lubricant F16C 33/04; lubrication specially adapted to machines or apparatus provided for in a single other class, see the relevant class for the machine or apparatus)
15/02 . with graphite or graphite-containing compositions
15/04 . with water (bearings working in water F16C)

17/00 Lubrication of machines or apparatus working under extreme conditions (additives to lubricating oil or lubricating grease C10M)
17/02 . at high temperature (of turbines F01D, F02C; lubrication of machines or engines in general, of internal-combustion engines F01M)
17/04 . at low temperature (lubrication of refrigerating machines F25B)
17/06 . in vacuum or under reduced pressure (lubrication of evacuating pumps F04; of rotary anodes of X-ray tubes H01J 35/10)

Details of lubricators or lubrication systems

19/00 Lubricant containers for use in lubricators or lubrication systems
19/003 . {Indicating oil level (measuring liquid level in general G01F)}
19/006 . {Maintaining oil level (level control in general G05D 9/00)}

21/00 Conduits; Junctions (in general F16L)**; Fittings for lubrication apertures**
2021/005 . {Modulair units}
21/02 . Lubricating nipples
21/04 . Nozzles for connection of lubricating equipment to nipples
21/06 . Covering members for nipples, conduits or apertures

23/00 Special adaptations of check valves (check valves in general F16K)

25/00 Distributing equipment {with or without proportioning devices}
25/02 . with reciprocating distributing slide valve
25/04 . with rotary distributing member (combined with oil pump F16N 13/22)

27/00 Proportioning devices (liquid meters G01F)
27/005 . {using restrictions}
27/02 . Gating equipment (multiple-way valves F16K; metering cocks G01F)

29/00 Special means in lubricating arrangements or systems providing for the indication or detection of undesired conditions; Use of devices responsive to conditions in lubricating arrangements or systems (in bearings F16C; constructions of apparatus outside the lubricating arrangements or systems, see the relevant classes)
29/02 . for influencing the supply of lubricant
29/04 . enabling a warning to be given; enabling moving parts to be stopped

31/00 Means for collecting, retaining, or draining-off lubricant in or on machines or apparatus (oil separators for separating oil from exhaust steam F22G)
31/002 . {Drain pans}
31/004 . . {combined with container}
31/006 . {Drip trays}
2031/008 . {Drain plugs}
31/02 . Oil catchers; Oil wipers (oil-scraping rings for pistons F16J 9/20; {cleaning means for indicating or measuring dip members, e.g. dipstick wipers G01F 23/045})
2031/025 . . {Oil-slinger}

33/00 Mechanical arrangements for cleaning lubricating equipment; Special racks or the like for use in draining lubricant from machine parts
2033/005 . {Flushing}

Care of lubricants

35/00 Storage of lubricants in engine-rooms or the like (storage containers B65)

37/00 Equipment for transferring lubricant from one container to another
37/003 . {for filling bearings}
2037/006 . {Filling}
37/02 . for filling grease guns

39/00 Arrangements for conditioning of lubricants in the lubricating system (cleaning of lubricating oil, lubricating compositions C10M)
39/002 . {by deaeration (degasification of liquids B01D 19/00)}
39/005 . {by evaporating or purifying (for heating or cooling of filters B01D 35/18, e.g. comprising a vaporising unit B01D 35/185)}
2039/007 . {Using strainers}
39/02 . by cooling (heat-exchangers in general F28)
39/04 . by heating (heat-exchangers in general F28)
39/06 . by filtration (filters in general B01D; magnetic separators B03C 1/00; {centrifugal separators or filters B04B 5/005})
2039/065 . . {inlet foot filter}
39/08 . by diluting, e.g. by addition of fuel (lubrication of machines or engines in general, of internal-combustion engines F01M)

99/00 Subject matter not provided for in other groups of this subclass

2200/00 **Condition of lubricant**
2200/02 . Oxidation
2200/04 . Detecting debris, chips, swarfs
2200/06 . Film thickness
2200/08 . Acidity, pH-value
2200/10 . Temperature
2200/12 . Viscosity
2200/14 . Treating with electricity
2200/16 . using tracers
2200/18 . Detecting foaming
2200/20 . Detecting water

Care of lubricants

2210/00 **Applications**
2210/02 . Turbines
2210/025 . . Wind Turbines
2210/04 . Vehicles
2210/06 . Marine
2210/08 . Aircraft
2210/09 . . for inverted flight
2210/10 . Refrigerators
2210/12 . Gearings
2210/14 . Bearings
2210/16 . Pumps
2210/18 . Electric motors
2210/20 . Electric generators
2210/22 . Centrifuges
2210/24 . Conveyors
2210/26 . Spinning spindles
2210/28 . submerged
2210/30 . for reversed rotation
2210/32 . Sewing machines
2210/33 . Chains
2210/34 . Cables and wires

2230/00 **Signal processing**
2230/02 . Microprocessor; Microcomputer
2230/06 . using mapping techniques
2230/10 . Timing network
2230/12 . . with pneumatic elements
2230/13 . . with hydraulic elements
2230/14 . . with bimetallic elements
2230/16 . . with capacitors
2230/18 . Switches
2230/19 . . Photo sensor
2230/20 . . Reed relays
2230/22 . using counters

2250/00 **Measuring**
2250/04 . Pressure
2250/05 . . Atmospheric pressure
2250/06 . . for determining flow
2250/08 . Temperature
2250/11 . . Ambient temperature
2250/16 . Number of revolutions, RPM
2250/18 . Level
2250/30 . Dialectricum
2250/32 . Inductive
2250/34 . Transparency; Light; Photo sensor
2250/36 . Viscosity
2250/38 . Piezo; x-tal
2250/40 . Flow
2250/42 . Friction
2250/50 . Sampling
2250/52 . . magnetic

2260/00 **Fail safe**
2260/02 . Indicating
2260/04 . . Oil level
2260/05 . . Oil flow
2260/06 . . Temperature
2260/065 . . . by means of colours or dye
2260/08 . . Pressure
2260/12 . . using warning lamps
2260/14 . . using sound
2260/16 . . using recording
2260/18 . . necessity of changing oil
2260/20 . Emergency
2260/21 . . limping home
2260/22 . . Rupture
2260/24 . . using accumulator
2260/30 . Clogging filter
2260/32 . Pump failure
2260/40 . Pre-lubrication
2260/50 . After-lubrication
2260/60 . Limping home

2270/00 **Controlling**
2270/10 . Level
2270/12 . . using overflow (F16N 2270/18 takes precedence)
2270/14 . . using float device
2270/18 . . using overflow by filling
2270/20 . Amount of lubricant
2270/22 . . with restrictions
2270/24 . . . using porous, felt, ceramic, or sintered material
2270/26 . . . variable
2270/30 . . intermittent
2270/32 . . . Fixed pulse, fixed length, fixed amplitude
2270/48 . . . pressure-controlled
2270/50 . Condition
2270/52 . . Viscosity
2270/54 . . pH; Acidity
2270/56 . . Temperature
2270/60 . Pressure
2270/62 . . Limit
2270/64 . . Set-pressure
2270/70 . Supply
2270/72 . . on-off
2270/74 . . . only during use

2280/00 **Valves**
2280/02 . electromagnetically operated
2280/04 . Variable-flow or proportional valves